

grain out of the ears, for which its short, thick bill seems wonderfully well adapted. Its flight differs slightly both from that of *Anthus* and *Cincloramphus*, but in some respects approaches nearer to that of the latter; it is very undulating. When the bird is about to descend, it quivers with its wings, and sails down with a peculiar tremulous motion. This may also be observed between each undulation when the bird is flying quietly: but when suddenly flushed or flying to any distance, this peculiarity is not noticeable; at other times it immediately attracts attention and renders this species conspicuous among all the other Larks—with which, during October and the three following months, the fields literally swarm, as they rise before you in numbers at every step you take.

The nests of *Mirafra horsfieldi* are usually found during the months of November, December, and often as late as January and February. They are loose ragged structures, and not finished off nicely, like those of *Anthus australis*. They are cup-shaped, and are composed wholly of grasses, without any particular lining. The situation chosen is a little hollow scraped out by the side of a tuft of grass or straw, or behind a clod of earth; the front edge of the nest alone is smoothed down—the back part being left ragged, and often drawn forward as if to help to conceal the eggs. The nest is about $2\frac{1}{2}$ inches in diameter by 1 inch in depth. On the 4th of February, 1861, we took a nest from a hay-field at M'Quarie Fields containing three eggs, which is the usual number. These are in length from 8 to 10 lines by from 6 to 7 in breadth, and of a light earthy brown, thickly marked over the whole surface with freckles of a much darker hue. Some specimens are darker in colour than others; and after a time the ground-colour becomes of a more yellowish tint, and the markings much duller and more indistinct.

7. INDIAN ORNITHOLOGICAL NOTES, CHIEFLY ON THE MIGRATION OF SPECIES. BY CAPT. R. C. BEAVAN, LIEUT. BENGAL SURVEY, C.M.Z.S.

July 28th, 1864, Barrackpore, near Calcutta.—The Black-headed Oriole (*Oriolus melanocephalus*, Linn.) is common about the station, flying from tree to tree, and uttering his cheerful whistle. It is curious that one hardly ever sees the female of this bird, the proportion of males to females in collecting skins being generally as six to one. The Bengal Babbler (*Malacocercus terricolor*, Hodgson) is the characteristic inhabitant of the bamboo-groves in the neighbourhood; and small parties of them seem to keep much to particular spots near villages, but not, I think, with the dirt-devouring intent ascribed to them by some. In gardens the curious Tailorbird (*Orthotomus longicauda*, Gmelin) may be seen flitting from bush to bush in amorous pursuit of its mate, or diligently searching the creepers near the house for insects. The bare summit of a lofty *Casuarina* tree is generally frequented by a Barbet, of which two species are common, the first more so than the

second—the Blue-throated Barbet (*Cyanops asiatica*, Lath.), and the small Crimson-breasted one (*Xantholæma indica*, Lath.). I have heard these birds compared to a parson in a pulpit, from their peculiar habit of taking up an elevated position on a tree and, when there, turning their heads from one side to the other at each note uttered, just as if they were addressing an audience below. The Small Barbet, although the rarest here, becomes the most abundant species of its race when we get out of Lower Bengal into the uplands of the Bancoorah and Maunbhoom districts, to the westward of Calcutta. We look in vain for our common Green Bee-eater (*Merops viridis*, Linn.), which is so abundant in the cold weather that almost every dead bough bears one. A careful examination shows a Bee-eater, which is, however, rather rare and difficult of approach: this is a nearly allied species (*M. philippensis*), which during the rainy months takes the place of the commoner species (*M. viridis*), but not in such numbers.

August 1st.—A stroll with the gun in the neighbourhood reveals a common Paddy-bird (*Ardeola leucoptera*, Bodd.) which, though so numerous, generally appears during the rains to have almost entirely forsaken us. It is a curious and interesting subject of inquiry this periodical migration of some of our commonest birds. With the country under water, the Heron and Egret tribes cannot, perhaps, get at their finny prey so easily as in October and November, when the water begins to dry up; but where do they go? is the question; and where do the majority breed? Some, doubtless, nest in various parts of Lower Bengal; but no observer yet seems to have come across a sufficient number of their nests to account for the vast numbers of birds one sees during the cold weather—not in flocks, as my words would seem to imply, but here and there, every little pond with three or four round its edges. Our common Magpie, or, more correctly speaking, Tree-Pie, is *Dendrocitta rufa*, Scop., which stays with us all the year round and breeds here. A Dove (*Turtur sura-tensis*, Gmel.) is frequently seen about bamboo jungles near the villages; it is not very plentiful yet, but probably gets an addition to its numbers a few weeks hence by the arrival of others. About this date I observed large numbers of Parrakeets (*Palæornis torquatus*, Bodd.) of an evening, flying about the palmyra trees near the railway-station. They had evidently assembled in such large flocks to roost only; for an examination showed their stomachs to be filled with grain or chenna, of which none grows in this neighbourhood, and, even if it did, could scarcely be ripe yet. Many were young birds, with undeveloped tail-feathers.

August 6th.—The small yellow Bulbul (*Iora typhia*, Linn.) is plentiful, questing for insects amongst the flowers of the acacia; it has much of the habits of the English Tomtit in the way it creeps about from bough to bough. Associated with it on the same tree, but much more on the wing, is that gem of our Indian Honey-suckers, *Leptocoma zeylanica*, Linn., approaching in its metallic hues the gorgeous Humming-birds of America. The station parade-ground yields a Lark which has apparently only just arrived and is

still in pairs—the Indian Titlark (*Corydalla rufula*, Vieill.). The little Green Heron (*Butorides javanicus*, Horsf.) is occasionally met with in a retired corner of the bank of some pond. The only Kingfishers seen are the pied *Ceryle rudis* and the common *Alcedo bengalensis*, the latter not plentiful yet. Plenty of Magpies about (*Dendrocitta rufa*), chiefly young birds attended by their parents.

August 14th.—A walk along a muddy road towards Neilgunje does not yield much. The country is still swamped, but the fields of waving rice hide the water from view. Except in the immediate vicinity of villages, it is impossible to progress across the country without wading. A pair of the Ashy Swallow Shrike (*Artamus fuscus*, Vieill.) are busy in the air near some high trees. In flight this bird resembles a Swallow so closely that it requires some attention to discriminate it. An occasional Magpie Robin (*Copsychus saularis*), a few white Egrets passing overhead, a solitary Cormorant (*Graculus javanicus*, Horsf.), and a large Kingfisher (*Halcyon leucocephalus*), together with a small flock of the Shell Ibis (*Anastomus oscitans*) busily feeding in a swamped rice-field, comprise nearly all the new arrivals. A small flock of the pretty Powé Myna (*Temenuchus malabaricus*) is found in a tree near a village, busily feeding; and a green object, flashing for an instant in the sun in pursuit of an insect, turns out to be the Blue-tailed Bee-eater (*Merops philippensis*, Linn.).

August 17th.—I shot a beautiful specimen of an Australian bird, busily feeding in a rice-field. It is the Banded Grass-Parrakeet of Gould (*Melopsittacus undulatus*), and, though apparently a wild specimen in the adult plumage of the male, must have escaped from captivity. Mr. Blyth tells me he saw numbers of these birds some years since in the menagerie at Burdwan.

September 2nd.—Since Jerdon, in his 'Birds of India,' vol. ii. p. 674, regrets that he has no information with regard to the times of the appearance and departure of the Pintailed Snipe (*Gallinago stenura*, Temm.), as distinguished from the common Snipe (*G. scolopacina*, Bonap.), I am anxious to find out which species arrives first with us in Lower Bengal. Although Snipes are said to have arrived, I have not yet seen a single specimen of either species. Their forerunners, the Snippets (*Totani*), have come; a pair were observed to-day; and other migratory cold-weather visitants are dropping in daily.

September 5th.—Came across a flock of Powé Mynas in moulting-plumage; these birds are not nearly so common as they used to be here. Kingcrows (the *Dicrurus macrocerus* of Vieillot), as well as most other birds, including the Blue-tailed Bee-eater, are moulting now; the latter still about, but appears now in pairs. I fancied that a few weeks ago several were seen together. Paddy-birds are getting more numerous, but losing their breeding-plumage. Cormorants arriving. The small Kingfisher (*Alcedo bengalensis*) is tolerably common. Still a general scarcity of birds. Heard that a flock of Golden Plovers had been seen on the parade-ground, and that Snipe had been brought into the station by natives in former years as early as July. These had, of course, bred in the neighbourhood.

The Nutmeg-bird (*Munia undulata*) is plentiful in fields of ripe rice, together with the Weaverbird, which latter (*Ploceus baya*, Blyth) breeds about here, and is common all the year round. The Sparrow (*Passer indicus*), also, is abundant, and evidently a permanent resident. Among Cuckoos, the Koel (*Eudynamys orientalis*, Linn.) is frequently seen towards evening, flying from tree to tree with drooping wings and tail, uttering its peculiarly harsh and disagreeable call, which too generally arouses one from one's slumbers in the early morning before dawn. It frequents the thick trees in the compounds of houses and the vicinity of villages, and appears to avoid the uninhabited parts of the country.

September 6th.—Secured a specimen of the peculiar plaintive Cuckoo near the station, apparently just arrived—a young male *Polyphasia (tenuirostris*, Gray?), with its stomach filled with caterpillars and other soft insects. Feet light yellow, inclined to greenish yellow above; claws sharp and black; bill brownish-black; upper mandible, tip of lower, and gape reddish-brown. Length $9\frac{1}{4}$ in. Peculiar in having the primary coverts white.

September 26th.—Snipes about, but not very plentiful: eight to ten couple can, in a favourable locality, be killed in a day; but in this immediate neighbourhood nearly all are snared by the natives for the Calcutta market. The species, from their arrival there in a plucked state, is not ascertainable. A pair of the White-faced Wag-tail (*Motacilla luzoniensis*) first seen, feeding in a newly ploughed field. Orioles appear more plentiful,—and the Indian Titlark (*Corydalla rufula*) decidedly so; six may now be observed where a month ago only a pair were visible. Paddy-birds (*Ardeola*) putting on cold-weather plumage, and more common. The Kingcrow (*Dicrurus macrocerus*) has nearly done moulting; young birds still seen without the lengthened tail-feathers. *Merops philippensis* still about, but getting scarce. *Pastor malabaricus* flying from tree to tree in small flocks. Mynas (both *Acridotheres tristis* and *Sturnopastor contra*) in flocks, instead of pairs. Kites (*Milvus govinda*, Sykes, and *Haliastur indus*, Bodd.) are getting numerous; some have scarcely finished moulting. An occasional Adjutant (*Leptoptilos agala*) seen. Weaverbirds (*Ploceus*) still building. Koels (*Eudynamys*) very numerous near the house.

September 27th.—Shot my first Snipe of the season, a Pintail (*Gallinago stenura*), in very good condition. Secured a bird on the wing which appeared to cause a great deal of alarm amongst a party of the Red-eared Bulbul (*Otocompsa jocosa*). It was much like a Hawk on the wing, but turned out to be the Hawk Cuckoo (*Hierococcyx varius*, Vahl). Another cuculine bird, secured in a thick bushy tree, was *Coccytes melanoleucos*, Gmel. The first Grey Shrike (*Lanius cristatus*) also seen, and three Teal observed flying overhead; so that cold-weather visitants are evidently coming in daily.

In the evening saw the first of the common Bee-eater (*Merops viridis*), several hawking over a newly-ploughed field, evidently just arrived, and in beautiful plumage. Scarcely a single *M. philippensis* appears to be left; but their places—actually the same sprays

the latter frequented a few days ago—are now occupied by *M. viridis*. This elegant bird is essentially a tyrant in habits, in the old acceptation (*τύραννος*) of the word. Seated on a dry twig at the extremity of a limb of a wide-spreading mango-tree which overhangs the tank, he chooses his post of observation, which gives him a clear look-out in all directions, with the skill of a general; his head is constantly turned from side to side in unceasing watchfulness. His long black beak glistens in the sun; and its rays impart quite a metallic appearance to his chestnut-coloured head, whilst his beautiful eyes, of a bright crimson hue, ever awake and watchful, are well set off by the black streak of feathers which, commencing at the base of the beak and passing round them, ends in the ear-coverts, and gives him quite an air of mustachoeed dignity. His bright green plumage, too, is so much like the glistening upperside of a leaf, that when once lost sight of it is uncommonly difficult again to make out the whereabouts of our little friend. But wait, let us see him swoop. Down, quicker than thought, from his perch, a flash of shining green is seen for a second to dart, then turn, with outspread tail and wings, hovering for a second in the bright sunbeams, as if to thank them for their genial warmth and the food they have brought, and back to his solitary watch-post to await the next victim.

The Yellow Bulbul (*Iora typhia*), so common in August last, has now almost disappeared. The Amethystine Honey-sucker (*Leptocoma zeylanica*) is common in cocoa-nut trees, amongst the drooping bunches of yellow flowers. Mynas decidedly forming into flocks. The common Paddy-bird (*Ardeola leucoptera*) in fine cold-weather plumage, with few exceptions.

September 28th.—An occasional *Merops philippensis* still about. A Whistling Teal (*Dendrocygna awsuree*, Sykes) or two met with; and a Pintailed Snipe secured whilst shooting Bats after sunset on the parade-ground. A single Yellow Wagtail (*Calobates sulphurea*) seen in drains near the house.

October 1st.—Snipes seen near the line of railway to Calcutta; Snippets (*Totani*), however, tolerably plentiful, as are also Bee-eaters of the common species (*Merops viridis*). Cormorants and Egrets frequently seen. Kingcrows (*Dicruri*) in numbers about telegraph-wires. Painted Snipes (*Rhynchæa bengalensis*, Linn.) have been seen within the last few days.

October 28th.—With regard to the arrival of Snipes in the neighbourhood of Barrackpore, I have ascertained that the Pintailed probably arrive earlier, and in greater numbers at first, than the common species; the first killed in September were of the pintailed variety; and of several bags examined lately these formed the greater portion; of thirteen killed by a friend and myself yesterday, every single one was a Pintail. The first Quail (*Coturnix communis*?) observed; as also a Bustard Quail (*Turnix ocellatus*). Flocks of Geese seen flying overhead, at no great elevation, about the 24th of this month.

November 14th.—Shot a fine Kestrel (*Tinnunculus alaudarius*) which was hawking over a rice-field; this is the first seen this

season. Procured also a specimen of the Blue-throated Warbler (*Cyanecula suecica*, Linn.), of which three or four were observed in some reeds. *Motacilla luzoniensis* is now common. Jerdon does not draw any distinction, except size, between the male and the female; the latter, from a fresh specimen now before me, has no black at all on the head or back, all grey ashy (like the male) except a little frontal patch of white. There is no mistake about the species, as it was killed with its mate, a male in full plumage.

November 17th.—The Pintailed Snipes appear to have nearly all left the country, and to have been replaced by the common Snipes. Out of fifteen examined to-day all were full Snipes, excepting one or two Jack Snipes, which are the first of the latter species seen this year. A Ruby-throated Warbler (*Calliope kamtschatkensis*, Gmel.) killed near the station, where it frequents thick hedges.

November 19th.—Killed one Pintailed Snipe out of three; but they are evidently rare.

November 21st.—Of nine Snipes examined, all belonged to the common species. Observed in cages a pair of the Golden-fronted Green Bulbul (*Phyllornis aurifrons*). These birds had been brought from Dacca, where it appears they are commonly caged, and vulgarly called Mockingbirds, their powers of imitation being highly developed.

8. DESCRIPTIONS OF SEVEN NEW SPECIES OF AUSTRALIAN LAND-SHELLS. BY JAMES C. COX, OF SYDNEY, M.D. ETC.

HELIX ARIDORUM.

H. testa profunde umbilicata, depresso-globosa, solidiuscula, parum nitente, radiatim rugoso-striata, sub lente subtilissime granulata, infra leviuscula, corneo-virescente; spira parva, late depressa, apice obtuso, sutura impressa; anfractibus quatuor et dimidio, convexis, ultimo peramplo, rotundato, tumido; apertura lunari-circulari, peristomate tenui, reflexo, margine columellari basi dilatato, et umbilici semissem obtegente.

Diam. maj. 0·56, min. 0·50, alt. 0·40 unc.

Hab. Clarence River, New South Wales (*Macgillivray*). Under logs on dry stony ironbark ridges.

HELIX FLOSCULUS.

H. testa obtecte perforata, depresso-lenticulari, tenuiuscula, pellicula, radiato-striata, lutescente, fasciis crebris ferrugineis radiatis, anfractu ultimo præsertim et ad umbilicum extendentibus, cinguloque interdum infra carinam; spira convexo-conica; anfractibus quinque, convexiusculis, ultimo carinato; apertura angulato-lunata, peristomate simplici, ad columellam vix expanso.

Diam. maj. 0·40, min. 0·37, alt. 0·26 unc.

Hab. Norfolk Island (*Turner*).